AMENDMENT TO THE DRAWINGS:

The attached sheet of drawing includes changes to Fig. 1 and is being submitted as a replacement for the comparable sheet of drawings including Fig. 1 as originally filed.

Attachment: One (1) Replacement Sheet – Fig. 1.

REMARKS

Favorable reconsideration and allowance of this application are requested.

1. Filing of Request for Continued Examination

As a procedural note, the present amendment is being filed concurrently with a formal Request for Continued Examination (RCE) under 37 CFR §1.114. Accordingly withdrawal of the "finality" of the August 14, 2009 Official Action is in order so as to allow entry and consideration of the amendments and remarks presented herewith.

2. Discussion of Amendments

By way of the amendment instructions above, pending claims 5 and 18 have been revised so as to be in independent format. In addition, new independent claim 19 has been presented which represents a combination of prior claims 6 and 10. In order to prevent claim redundancy, claim 10 has been amended so as to be dependent from claim 9.

Claims 5, 18 and 19 should therefore be in condition for allowance in view of the Examiner's indication of allowability thereof.

Therefore, following entry of this amendment, claims 1-19 will be pending in this application for which favorable action on the merits is solicited.

3. Response to Drawing Objections

Claims 4 and 15 have been amended to clarify that the burner lance has a "discharge end" and that the burner lance feeds fuel into the burner tube at the discharge end thereof. No drawing revisions are thus needed since such structures are clearly depicted in Fig. 1 as described, e.g., on page 3, lines 21-23 of the originally filed specification.

The cyclone-shaped intermediate burner in the burner tube as required by claim 5 is already shown in Fig. 2a and described on page 5, lines 11-13 of the specification. Specifically, the burner tube 24 has a cyclone part 32 associated operatively therewith. Claim 5 has thus been clarified to recite that the method includes feeding the fuel into the connecting tube which is operatively associated with a cyclone-shaped intermediate part of the burner tube.

As for the objection to the structures recited in claim 11, the specification on page 4, lines 11-25 has been amended to clarify that the embodiment as shown in Fig. 1 depicts the burner tube, the connecting tube and the gas turbine are constructed as a unit capable of adjustable positioning in relation to the rotary kiln. Arrow A has been added to the accompanying replacement drawing sheet including Fig. 1 to show representatively movement of such a unit.

In a similar manner, the feature required by claim 12,[1] that is a cooling air fan, has been clarified by insertion of an appropriate reference numeral in the specification paragraph on page 4, lines 11-25. An appropriate clarifying amendment was also made to the paragraph on page 5, line 34 through page 6, line 8 of the specification in this regard. Thus, original Fig. 1 depicted the cooling air fan 6 as defined by claim 12.

4. Response to 35 USC §112 Rejections

The amendments made to the claims above are believed to address the rejections advanced under 35 USC §112, second paragraph. Withdrawal of such rejections is therefore believed to be in order.

[1] The Examiner's reference to claim 13 has reciting a "cooling air fan" appears to be a typographical error as such a feature is in fact recited in pending claim 12.

5. Response to 35 USC §103(a) Rejections

Applicants suggest that the rejection of claims 1-4, 6-9, 11-14 and 16-17 under 35 USC §103(a) as unpatentable over JP 51-136716 ("JP '716"), JP 07-208705 ("JP '705") or DE 100 62 066 ("DE '066") is in appropriate and should be withdrawn.

In this regard, applicants note that the flue gas from the gas turbine (GT) of JP '705 is not used as primary air for combustion of the fuel introduced into the burner tube. A machine translation of JP '705 is attached for the Examiner's consideration in this regard. The drawings and paragraphs [008] and [009] of the JP '705 publication describe that the fresh air 210 is heated in the heat exchanger 20 with the exhaust gas 100, 130 from the gas turbine. The fresh air is used as primary air in the burner 30 of the boiler. The cooled GT exhaust gas 131 is supplied to the boiler furnace 50 and used as tertiary air 132. The hot GT exhaust gas 120 is supplied to the boiler furnace and used as the secondary air of the burner 30. The JP '705 publication therefore does not teach that only the flue gas from the gas turbine is used as primary air in the burner for the rotary kiln. The system of the JP '705 publication is completely different from the presently claimed invention. The heating of fresh air with the exhaust gas from the gas turbine and the use of different gases (hot fresh air, exhaust gases of different temperatures) are essential features of the system disclosed in the JP '705 publication.

JP '716 describes a process in which a primary gas is passed through the burner of a rotary kiln. According to JP '716 the primary gas, in comparison to air, is low in oxygen. The main solution described in JP '716 is the use of a mixture of air and exhaust gas from the rotary kiln. This is arranged by using blowers for supplying air and exhaust gas so that they meet at a meeting point and mix with each other. In any case, the JP '716 publication does not use a gas turbine at all. In the applicants' claimed invention, the gas turbine is not a separate blower instead is a technical solution whereby it can be integrated as a unit with the burner tube. The blower system of JP

'716 cannot be arranged in the same way. Further, in JP '716 the temperature of the exhaust gas is decreased essentially when air is added. In the known, widely used technology a typical temperature of primary air is in the range of 150-200°C. One feature of the presently claimed invention is that a higher temperature 400-800°C may be employed. The oxygen content in some preferred embodiments of the applicants' invention may be 15-16%. The oxygen-content (lower than the oxygen-content of air) is not a primary aim as such, but a result from the desire to generate a hot gas having a relatively high velocity after exiting the burner, and when this is done by means of a gas turbine, consumption of oxygen is inevitable. If the temperature of the gas would remain lower than 400 °C, the advantage of the burner solution would be nonexistent, if compared to the current technology with a typical temperature of primary air in the range of 150-200°C.

The system disclosed in the DE '066 publication comprises a solution tailored for a cement mill, wherein exhaust gas from a gas turbine is used as combustion air in one or several burners of the kiln. In the DE '066 publication the exhaust gas from a gas turbine is, in fact, used as combustion air in the furnace. The solution offered by the DE '066 publication differs from the applicants' claimed invention at least in that in the latter only air needed for stabilizing and forming of the flame (i.e. primary air) is produced in the gas turbine, which does not produce electricity nor heat for purposes other than rotating the turbine itself. In the applicants' claimed invention other air required in the kiln in addition to primary, such as secondary air, bypasses the burner. Typically the secondary air is heated by causing it to contact with the material combusted in the rotary kiln. In certain embodiments of the applicants' system the combustion air is essentially drawn into the kiln through e.g. coolers for a finished product treated in the kiln, such as lime, and only air needed for stabilizing and forming of the flame is produced in the gas turbine, which does not produce electricity nor heat for purposes other than rotating the turbine itself.

The DE publication further comprises a fan (17) between the turbine and the burner, while according to some embodiments of the claimed invention, the gas turbine generates the pressure required for compensating for the flow resistances of the burner. The fan is needed because the pressure of the exhaust gas from the turbine may be decreased and the electricity production increased by means of the fan, as the turbine does not have to compensate for pressure drop of the burner. This is important when the total amount of exhaust gas from the turbine(s) is not fed in the burner. Using the fan also restricts the temperature of the exhaust gas from the turbine below 450^{o}C, because exceeding that temperature would mean an increase, in some cases a remarkable increase, both in the price and the power requirement of the fan.

The applicants' burner uses the turbine and combustion chamber to generate a high temperature primary air for flame shaping. The gas exiting the turbine has a temperature of 400-800 ^{o}C. A primary air fan is no longer required and thus lower electricity consumption results. In the DE '066 and in JP '716 publications, a fan is still needed.

The burner according to embodiments of the applicants' invention produces primary air from a gas generator comprised of a turbine with compressor and combustion chamber. The primary air flow is adjusted by changing the amount of fuel burned in the gas generator. The fuel amount determines the turbine speed and the pressure to the combustion chamber controlled by adjusting the fuel flow rate. The burner flame is infinitely adjustable from the small ignition flame up to the maximum rating of the burner. This means that there is a better runnability and easier adjustment at various production levels in the kiln.

The advantages mentioned above and in the specification as originally filed are not obtained by using know systems. JP '716 does not even use a gas turbine, and thus the present invention cannot be obvious therefrom. The system having fans for

mixing flue gas from a kiln (not from a gas turbine) and fresh air is completely different technology. The DE '066 publication uses a turbine mainly for producing electricity and thus the use of the flue gas from the turbine as combustion air in the rotary kiln cannot be optimized. The flue gas from the gas turbine (GT) is not used as primary air for combustion of the fuel introduced into the burner tube.

Therefore, in view of the comments above, the rejection advanced against the pending claims under 35 USC §103(a) should be withdrawn. Allowance of all claims pending herein is therefore solicited.

6. Fee Authorization

The Commissioner is hereby authorized to charge any deficiency, or credit any overpayment, in the fee(s) filed, or asserted to be filed, or which should have been filed herewith (or with any paper hereafter filed in this application by this firm) to our Account No. 14-1140.

Respectfully submitted,

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